



CASE STUDY

# Fiberglass mat manufacturing

## Formaldehyde emissions control

### CHALLENGE

An Oregon-based roofing company, which manufactures rubberized asphalt shingles, needed to reduce the amount of formaldehyde emitted by its manufacturing process. The rubberized asphalt shingles are made by laying down chopped glass, adding a binder, and then oven curing the mat. Formaldehyde is a byproduct of the fiberglass mat manufacturing process. The off gas is captured and sent to an oxidizer. When choosing a solution, the company's two most important factors were energy efficiency and simple mechanical design.

### HIGHLIGHTS



Factory-assembled and tested unit installed and commissioned within weeks

Vertically oriented poppet valves simplify valve maintenance and increase reliability

Air gas ratio control system reduces natural gas consumption by nearly 15%

Valve design offers reduced condensation and corrosion, and longer service life

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### SOLUTION

Dürr proposed an Oxi.X RM regenerative thermal oxidizer, which provides a low-pressure pulse when cycling, ensuring the fiber mat will not wrinkle during the manufacturing process. In addition, the Oxi.X RM had the proven uptime (>99%), high destruction efficiency (98+%) and energy efficiency (97+%) to meet this customer's stringent permit requirements. The Dürr team worked closely with the customer's plant engineering team to ensure that all ducting was designed to keep condensation to a minimum. The oxidizer materials of construction were also upgraded to maximize service life, while keeping capital to a minimum. Working with the customer's local energy providers, Dürr was able to get the company a substantial rebate due to the Oxi.X RM's high energy efficiency.

### DESIGN

The Oxi.X RM is fed by a dryer that emits both high temperatures and high humidity. The high humidity can lead to condensation, which can cause two problems - corrosion and lowered destruction efficiency. The RTO is designed such that the valves remain at a higher temperature than the process exhaust, which minimizes condensation, reduces corrosion, and increases service life and destruction efficiency.

### RESULT

Installed in Q1 of 2020, the unit has performed flawlessly, exceeding emission requirements set forth by Oregon - a state which is becoming more stringent with hazardous air pollutant and volatile organic compound emissions. The project is the first oxidizer installed in a fiberglass mat manufacturing facility in that state.



Oxi.X RM RTO abates formaldehyde generated by the asphalt shingle fiberglass mat manufacturing process.



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